

Serial No.: New – PCT/ JP2005/008637 Nat'l Phase
Filed: Herewith

AMENDMENTS TO THE SPECIFICATION:

Please add the following *new* paragraph on page 1, between lines 2 and 3:

CROSS-REFERENCE TO RELATED APPLICATIONS

This U.S. National stage application claims priority under 35 U.S.C. §119(a) to Japanese Patent Application No. 2004-203665, filed in Japan on July 9, 2004, the entire contents of which are hereby incorporated herein by reference.

Please replace paragraph [0002] with the following rewritten version:

[0002] As a conventional example of a fluid machine, ~~Patent Publication 1: Japanese Unexamined Patent Publication No. H6-288358~~ discloses a compressor having an eccentric rotation piston mechanism achieved by a cylinder having an annular cylinder chamber and an annular piston which is contained in the cylinder chamber to make eccentric rotation. The fluid machine compresses a refrigerant by making use of volumetric change in the cylinder chamber caused by the eccentric rotation of the piston.

~~Patent Publication 1: Japanese Unexamined Patent Publication No. H6-288358~~

Please replace the heading at page 1, line 15, with the following rewritten version:

SUMMARY OF THE INVENTION

Please replace paragraph [0006] with the following rewritten version:

[0006] Specifically, as shown in FIG. 1, a first aspect of the present invention is directed to a rotary fluid machine including a rotation mechanism (20) including: a cylinder (21) having an annular cylinder chamber (50); an annular piston (22) which is contained in the cylinder chamber (50) to be eccentric to the cylinder (21) and divides the cylinder chamber (50) into an outer working chamber (51) and an inner working chamber (52); and a blade (23) which is arranged in the cylinder chamber (50) to divide each of the working chambers into a high

pressure region and a low pressure region, the cylinder (21) and to the piston (22) making relative rotations, wherein the width **T1** of the cylinder chamber (50) is varied along the circumference of the cylinder chamber (50) such that the gap between the wall surface of the cylinder (21) and the wall surface of the piston (22) is kept to a predetermined value during the rotations.

Please replace paragraph [0007] with the following rewritten version:

[0007] According to the first aspect of the present invention, when the rotation mechanism (20) is actuated, the cylinder (21) and the piston (22) make relative rotations. As a result, the volumes of the working chambers (51) and (52) vary to cause compression or expansion of a fluid. As the width **T1** of the cylinder chamber (50) is varied along the circumference thereof, the gap that occurs between the wall surface of the cylinder (21) and the wall surface of the piston (22) is reduced to a minimum.

Please replace paragraph [0008] with the following rewritten version:

[0008] A second aspect of the present invention is directed to a rotary fluid machine including a rotation mechanism (20) including: a cylinder (21) having an annular cylinder chamber (50); an annular piston (22) which is contained in the cylinder chamber (50) to be eccentric to the cylinder (21) and divides the cylinder chamber (50) into an outer working chamber (51) and an inner working chamber (52); and a blade (23) which is arranged in the cylinder chamber (50) to divide each of the working chambers into a high pressure region and a low pressure region, the cylinder (21) and the piston (22) make relative rotations without spinning by themselves, wherein the width **T2** of the piston (22) is varied along the circumference of the piston (22) such that the gap between the wall surface of the cylinder (21) and the wall surface of the piston (22) is kept to a predetermined value during the rotations.

Please replace paragraph [0009] with the following rewritten version:

[0009] According to the second aspect of the present invention, when the rotation mechanism (20) is actuated, the cylinder (21) and the piston (22) make relative rotations. As a result, the volumes of the working chambers (51) and (52) vary to cause compression or expansion of a fluid. As the width T2 of the piston (22) is varied along the circumference of the piston (22), the gap that occurs between the wall surface of the cylinder (21) and the wall surface of the piston (22) is reduced to a minimum.

Please replace paragraph [0010] with the following rewritten version:

[0010] According to a third aspect of the present invention related to the second aspect of the present invention, the width T1 of the cylinder chamber (50) is varied along the circumference of the cylinder chamber (50) such that the gap between the wall surface of the cylinder (21) and the wall surface of the piston (22) is kept to a predetermined value during the rotations.

Please replace paragraph [0011] with the following rewritten version:

[0011] According to the third aspect of the present invention, the width T1 of the cylinder chamber (50) is varied along the circumference of the cylinder chamber (50) and the width T2 of the piston (22) is varied along the circumference of the piston (22). Therefore, the gap that occurs between the wall surface of the cylinder (21) and the wall surface of the piston (22) is reduced to a minimum.

Please replace paragraph [0012] with the following rewritten version:

[0012] According to a fourth aspect of the present invention related to the first or third aspect of the present invention, regarding the center line of the blade (23) as a starting point of the circumference of the cylinder chamber (50), the width T1 of part of the cylinder chamber (50) ranging from the starting point to a point at a rotation angle of 180° from the starting point is small and the width T1 of the other part of the cylinder chamber (50) ranging from the 180° point to a point at a rotation angle less than 360° from the starting point is small.

Please replace paragraph [0013] with the following rewritten version:

[0013] According to the fourth aspect of the present invention, the gap that occurs between the wall surface of the cylinder (21) and the wall surface of the piston (22) is reduced to a minimum with higher reliability.

Please replace paragraph [0014] with the following rewritten version:

[0014] According to a fifth aspect of the present invention, the center of the inner circumference of the cylinder chamber (50) is deviated from the center of the outer circumference of the cylinder chamber (50) when viewed in plan.

Please replace paragraph [0015] with the following rewritten version:

[0015] According to the fifth aspect of the present invention, the cylinder (21) is fabricated easily by merely deviating the inner circumference center and the outer circumference center of the cylinder chamber (50) from each other.

Please replace paragraph [0016] with the following rewritten version:

[0016] According to a sixth aspect of the present invention related to the first or third aspect of the present invention, the cylinder chamber (50) is divided into four regions along the circumference thereof such that the cylinder chamber (50) has wide regions (Z1, Z3) and narrow regions (Z2, Z4) formed in a continuous and alternate manner.

Please replace paragraph [0017] with the following rewritten version:

[0017] According to the sixth aspect of the present invention, the gap that occurs between the wall surface of the cylinder (21) and the wall surface of the piston (22) is surely reduced to a minimum at any time during the relative rotations by the cylinder (21) and the piston (22).

Please replace paragraph [0018] with the following rewritten version:

[0018] According to a seventh aspect of the present invention related to the second or third aspect of the present invention, the blade (23) and the piston (22) make relative swings at a predetermined swing center and regarding the swing center of the blade (23) and the piston (22) as a starting point of the circumference of the piston (22), the width **T2** of part of the piston (22) ranging from the starting point to a point at a rotation angle of 180° from the starting point is small and the width **T2** of the other part of the piston (22) ranging from the 180° point to a point at a rotation angle of 360° from the starting point is large.

Please replace paragraph [0019] with the following rewritten version:

[0019] According to the seventh aspect of the present invention, the gap that occurs between the wall surface of the cylinder (21) and the wall surface of the piston (22) is reduced to a minimum with higher reliability.

Please replace paragraph [0020] with the following rewritten version:

[0020] According to an eighth aspect of the present invention related to the seventh aspect of the present invention, the center of the inner circumference of the piston (22) is deviated from the center of the outer circumference of the piston (22) when viewed in plan.

Please replace paragraph [0021] with the following rewritten version:

[0021] According to the eighth aspect of the present invention, the piston (22) is fabricated easily by merely deviating the inner circumference center and the outer circumference center of the piston (22) from each other.

Please replace paragraph [0022] with the following rewritten version:

[0022] According to a ninth aspect of the present invention related to the second or third aspects of the present invention, the blade (23) and the piston (22) make relative swings at a predetermined swing center and the piston (22) is divided into four regions along the circumference thereof such that the piston (22) has narrow regions (**W1**, **W3**) and wide regions (**W2**, **W4**) formed in a continuous and alternate manner.

Please replace paragraph [0023] with the following rewritten version:

[0023] According to the ninth aspect of the present invention, the gap that occurs between the wall surface of the cylinder (21) and the wall surface of the piston (22) is surely reduced to a minimum at any time during the relative rotations by the cylinder (21) and the piston (22).

Please replace paragraph [0024] with the following rewritten version:

[0024] According to a tenth aspect of the present invention related to the first aspect of the present invention, part of the annular piston (22) of the rotation mechanism (20) is cut off such that the piston (22) is C-shaped, the blade (23) of the rotation mechanism (20) extends from the inner wall surface to the outer wall surface of the cylinder chamber (50) and passes through the cut-off portion of the piston (22) and a swing bushing is provided in the cut-off portion of the piston (22) to contact the piston (22) and the blade (23) via the surfaces thereof such that the blade (23) freely reciprocates and the blade (23) and the piston (22) make relative swings.

Please replace paragraph [0025] with the following rewritten version:

[0025] According to the tenth aspect of the present invention, the blade (23) reciprocates through the swing bushing (27) and the blade (23) swings together with the swing bushing (27) relative to the piston (22). Therefore, the cylinder (21) and the piston (22) make relative swings and rotations, whereby the rotation mechanism (20) achieves predetermined work such as compression.

Please replace paragraph [0027] with the following rewritten version:

[0027] According to the fourth aspect of the present invention, the width **T1** of part of the cylinder chamber (50) ranging from the starting point to a point at a rotation angle of 180° from the starting point is large and the width **T1** of the other part of the cylinder chamber (50) ranging from the 180° point to a point at a rotation less than 360° from the starting point is

small. Further, according to the seventh aspect of the present invention, the width **T2** of part of the piston (22) ranging from the starting point to a point at a rotation angle of 180° from the starting point is small and the width **T2** of the other part of the piston (22) ranging from the 180° point to a point at a rotation angle of 360° from the starting point is large. Therefore, the refrigerant leakage is surely prevented at any time during a single rotation. This brings about an improvement in efficiency with reliability.

Please replace paragraph [0028] with the following rewritten version:

[0028] According to the fifth aspect of the present invention, the center of the inner circumference of the cylinder chamber (50) is deviated from the center of the outer circumference of the cylinder chamber (50) when viewed in plan. Further, according to the eighth aspect of the present invention, the center of the inner circumference of the piston (22) is deviated from the center of the outer circumference of the piston (22) when viewed in plan. Therefore, the width **T1** of the cylinder chamber (50) is easily varied, and so is the width **T2** of the piston (22).

Please replace paragraph [0029] with the following rewritten version:

[0029] According to the sixth aspect of the present invention, the cylinder chamber (50) is divided into four regions along the circumference thereof such that the cylinder chamber (50) has wide regions (Z1, Z3) and narrow regions (Z2, Z4) formed in a continuous and alternate manner. Further, according to the ninth aspect of the present invention, the piston (22) is divided into four regions along the circumference thereof such that the piston (22) has narrow regions (W1, W3) and wide regions (W2, W4) formed in a continuous and alternate manner. Therefore, the gap that occurs between the wall surface of the cylinder (21) and the wall surface of the piston (22) is surely reduced to a minimum at any time during the relative rotations by the cylinder (21) and the piston (22).

Please replace paragraph [0030] with the following rewritten version:

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[0030] According to the tenth aspect of the present invention, a swing bushing (27) is provided as a connector for connecting the piston (22) and the blade (23) and substantially contacts the piston (22) and the blade (23) via the surfaces thereof. Therefore, the piston (22) and the blade (23) are prevented from wearing away and seizing up at the contacting parts.

Please remove the heading at page 8, line 5 as follows:

~~BRIEF EXPLANATION OF REFERENCE NUMERALS~~

Please remove the paragraph on page 8, line 6 as follows:

[0034] 1 Compressor
____ 10 Casing
____ 20 Compressor mechanism
____ 21 Cylinder
____ 22 Piston
____ 23 Blade
____ 24 Outer cylinder
____ 25 Inner cylinder
____ 27 Swing bushing
____ 30 Motor (drive mechanism)
____ 33 Drive shaft
____ 50 Cylinder chamber
____ 51 Outer compression chamber
____ 52 Inner compression chamber

Please replace the heading at page 8, line 20, with the following rewritten version:

~~BEST MODES FOR CARRYING OUT DETAILED DESCRIPTION OF THE~~

INVENTION

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Please replace the heading at page 25, line 1, with the following rewritten version:

WHAT IS CLAIMED IS: CLAIMS